

THE SOUTH AFRICAN MUSEUM'S MEIRING NAUDE CRUISES

PART 11

HYDROIDA

By

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(With 7 figures and 2 tables)

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ABSTRACT

A total of seventy-one species of hydroids is listed from the east coast of South Africa between southern Natal and East London, from depths ranging from 80 to 900 m. Three new species are described, namely *Cryptolaria spinosa* (Lafoeidae), *Corhiza sociabilis* (Plumulariidae, Halopterinae) and *Cladocarpus pegmatis* (Plumulariidae, Aglaopheniinae); and *Lovenella corrugata* is reported from South Africa for the first time. The gonosome of *Zygophylax infundibulum* and *Syntheций hians* is described for the first time, and extra information on the gonosome of several other species is provided. The geographical depth-range of certain species is extended.

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INTRODUCTION

This paper deals with the hydroids obtained during the cruises of the *Meiring Naude* in 1977, 1978 and 1979. These cruises were part of a project by the South African Museum aimed at surveying the fauna from deep water (over 400 m) off the east coast of South Africa. Since the results from deep-water dredging were sometimes disappointing due to the strong currents and inclement weather, a number of dredgings were also taken from shallower water. These records are included here, too, and the deep-water specimens are distinguished by a dagger in the species list.

The hydroid material from the 1975 and 1976 cruises of the *Meiring Naude*, off the north and central coasts of Natal, was described by Millard (1977). The material from the 1977 cruise, off the south coast of Natal, was incorporated into the analysis of geographical distribution by Millard (1978) (as was that of the 1975 and 1976 cruises), but is included here also since it was not described or listed separately. The 1978 cruise was off the coast of East London, Cape, and the 1979 cruise off the Transkei coast.

The exact positions and depths of the stations are published as a separate station list (Louw 1980), but an abbreviated list is included here as an aid to readers.

LIST OF SPECIES

Station numbers SM 121–134 are from the 1977 cruise (south coast of Natal), SM 162–185 from the 1978 cruise (off East London), and SM 217–255 from the 1979 cruise (off Transkei).

* Discussed further in the systematic account

† Deep-water records, over 400 m

	Station number	South African Museum number
Family Myriotheilidae		
<i>Myriotheila capensis</i> Manton, 1940	SM 179	SAM-H2954
Family Bougainvillidae		
<i>Garveia crassa</i> (Stechow, 1923).	†SM 121 †SM 174 †SM 233 †SM 234	SAM-H2933 SAM-H2952 SAM-H2968
Family Hydractiniidae		
<i>Hydrocorella africana</i> Stechow, 1921	SM 180 SM 185	SAM-H2955 (pp) SAM-H2955 (pp)
Family Campanulinidae		
<i>Egmundella amirantensis</i> Millard & Bouillon, 1973	SM 239	SAM-H2997
* <i>Egmundella ?superba</i> Stechow, 1921	SM 239	SAM-H2999
* <i>Lovenella corrugata</i> Thornely, 1908	SM 180	SAM-H2960
* <i>Opercularella</i> sp.	†SM 121 †SM 131 †SM 129	SAM-H2946 SAM-H2945 SAM-H2943
<i>Stegolaria geniculata</i> (Allman, 1888)	†SM 129	SAM-H2943
Family Haleciidae		
<i>Halecium beanii</i> (Johnston, 1838)	†SM 131 SM 239	SAM-H2935
<i>Halecium dichotomum</i> Allman, 1888	†SM 226	SAM-H3011
<i>Halecium tenellum</i> Hincks, 1861	†SM 129 †SM 134 SM 184 SM 185 SM 239 SM 250	SAM-H2934 SAM-H2938 SAM-H2995 SAM-H3003
Family Lafoeidae		
<i>Acryptolaria conferta</i> (Allman, 1877)	†SM 121 †SM 131 †SM 162	 SAM-H2941 SAM-H2947

	Station number	South African Museum number
	SM 185	
	†SM 226	
	†SM 228	SAM-H3015
	†SM 232	SAM-H3021
	†SM 233	SAM-H2970
	†SM 237	
	SM 239	SAM-H2989
	SM 255	
* <i>Acryptolaria rectangularis</i> (Jarvis, 1922)	†SM 121	SAM-H2929
	SM 239	SAM-H2987
	SM 250	
<i>Cryptolarella abyssicola</i> (Allman, 1888)	†SM 234	SAM-H2973
<i>Cryptolaria pectinata</i> (Allman, 1888)	SM 239	SAM-H2985
* <i>Cryptolaria spinosa</i> sp. nov.	SM 239	SAM-H2986
<i>Filicellum serratum</i> (Clarke, 1879)	†SM 131	SAM-H2936
	†SM 134	SAM-H2940
	SM 163/4	
	SM 185	
	†SM 226	SAM-H3012
<i>Hebella scandens</i> (Bale, 1888)	SM 179	
	SM 180	SAM-H2958
	SM 185	
	SM 239	
	SM 250	
<i>Lafoea dumosa</i> (Fleming, 1820)	†SM 121	
	†SM 134	
	SM 163/4	
	SM 185	
<i>Zygophylax africana</i> Stechow, 1923	†SM 129	SAM-H2944
	†SM 232	SAM-H3016
	†SM 233	SAM-H2969
	†SM 234	
* <i>Zygophylax armata</i> (Ritchie, 1907)	SM 163/4	
	SM 179	
	SM 185	
	SM 239	SAM-H2990
* <i>Zygophylax inconstans</i> Millard, 1977	†SM 233	SAM-H2971
* <i>Zygophylax infundibulum</i> Millard, 1958	SM 239	SAM-H2984
<i>Zygophylax sibogae</i> Billard, 1918	†SM 121	SAM-H2930
	SM 250	SAM-H3002
Family Campanulariidae		
<i>Campanularia hincksii</i> Alder, 1856	SM 239	SAM-H2996
	SM 250	SAM-H3004
<i>Campanularia morgansi</i> Millard, 1957	SM 239	
<i>Clytia gravieri</i> (Billard, 1904)	SM 200	SAM-H3029
	SM 217	SAM-H3028
<i>Clytia hemisphaerica</i> (Linnaeus, 1767)	SM 180	
	SM 250	
<i>Obelia bidentata</i> Clarke, 1875	SM 255	SAM-H3006
<i>Obelia dichotoma</i> (Linnaeus, 1758)	SM 180	
Family Syntheciidae		
* <i>Synthecium hians</i> Millard, 1957	SM 185	SAM-H2966
	SM 239	
Family Sertulariidae		
<i>Dictyocladium coactum</i> Stechow, 1923	SM 239	SAM-H2982
<i>Dynamena crisioides</i> Lamouroux, 1824	SM 239	SAM-H2983

	Station number	South African Museum number
<i>Parascyphus simplex</i> (Lamouroux, 1816)	SM 163/4	SAM-H2951
	SM 239	SAM-H2998
<i>Salacia articulata</i> (Pallas, 1766)	SM 163/4	
<i>Salacia disjuncta</i> Millard, 1964	SM 163/4	SAM-H2949
<i>Sertularella arbuscula</i> (Lamouroux, 1816)	SM 239	
	SM 250	
<i>Sertularella capensis</i> Millard, 1957	SM 239	SAM-H2981
<i>Sertularella dubia magna</i> Millard, 1958	SM 185	
<i>Sertularella flabellum</i> (Allman, 1886)	SM 163/4	
	SM 185	
	SM 239	SAM-H2979
	SM 250	
<i>Sertularella leiocarpa</i> (Allman, 1888)	†SM 134	SAM-H2937
	†SM 226	SAM-H3009
	†SM 232	
	†SM 233	
	†SM 237	SAM-H3027
	SM 239	SAM-H2980
<i>Sertularella megista</i> Stechow, 1923	SM 163/4	
	SM 179	
	SM 180	
	SM 185	SAM-H2961
	SM 239	
	SM 250	SAM-H3000
<i>Sertularella polyzonias xantha</i> Stechow, 1923	SM 179	SAM-H2953 <i>pp</i>
	SM 180	SAM-H2953 <i>pp</i>
<i>Sertularella pulchra</i> Stechow, 1923	SM 179	
	SM 184	
	SM 185	
<i>Symplectoscyphus amphoriferus</i> (Allman, 1877)	†SM 121	SAM-H2931
	†SM 234	SAM-H2974
<i>Symplectoscyphus arboriformis</i> (Marktanner- Turneretscher, 1890)	SM 179	
	SM 185	
	SM 239	
<i>Thyroscyphus aequalis</i> Warren, 1908	SM 239	
Family Plumulariidae, subfamily Halopterinae		
<i>Antennella quadriaurita</i> Ritchie, 1909	SM 179	
	SM 180	
	†SM 226	SAM-H3013
	†SM 232	
	†SM 233	
	†SM 237	SAM-H2977
	SM 239	
	SM 250	
<i>Antennella secundaria</i> (Gmelin, 1791)	SM 163/4	
<i>Corhiza bellicosa</i> Millard, 1962	SM 185	SAM-H2965
<i>Corhiza scotiae</i> (Ritchie, 1907)	†SM 233	SAM-H3025
* <i>Corhiza sociabilis</i> sp. nov.	†SM 237	SAM-H2978
<i>Corhiza valdiviae</i> (Stechow, 1923)	SM 180	SAM-H2959
	SM 184	
<i>Halopteris gemellipara</i> Millard, 1962	SM 185	SAM-H2963
<i>Halopteris glutinosa</i> (Lamouroux, 1816)	SM 239	
<i>Halopteris polymorpha</i> (Billard, 1913)	†SM 121	SAM-H2932
	*SM 233	SAM-H3024

	Station number	South African Museum number
<i>Halopteris tuba</i> (Kirchenpauer, 1876)	SM 185	
<i>Monostaechas faurei</i> Millard, 1958	SM 163/4	SAM-H2950
Family Plumulariidae, subfamily Plumulariinae		
<i>Nemertesia ciliata</i> Bale, 1914	†SM 232	SAM-H3020
	†SM 233	
	†SM 237	SAM-H2976
<i>Nemertesia ramosa</i> Lamouroux, 1816	†SM 232	SAM-H3019
<i>Plumularia pulchella</i> Bale, 1882	SM 163/4	
	SM 239	SAM-H2994
Family Plumulariidae, subfamily Aglaopheniinae		
<i>Aglaophenia pluma dichotoma</i> Kirchenpauer, 1872 .	SM 180	
	SM 185	
<i>Cladocarpus leloupi</i> Millard, 1962	SM 180	SAM-H2956
	SM 185	SAM-H2962
<i>Cladocarpus natalensis</i> Millard, 1977	†SM 121	SAM-H2942
	†SM 232	SAM-H3017
	†SM 233	SAM-H3023
* <i>Cladocarpus pegmatis</i> sp. nov.	†SM 232	SAM-H3018
	†SM 233	SAM-H2972
<i>Cladocarpus sinuosus</i> Vervoort, 1966	†SM 162	SAM-H2948
	†SM 233	SAM-H3026
<i>Cladocarpus valdiviae</i> Stechow, 1923	†SM 233	SAM-H3022
	†SM 237	SAM-H2975
	SM 239	SAM-H2993
<i>Thecocarpus flexuosus plumiferus</i> (Kirchenpauer, 1872)	SM 239	SAM-H2992
<i>Thecocarpus flexuosus solidus</i> (Millard, 1958) .	SM 185	SAM-H2964
<i>Thecocarpus flexuosus umbellatus</i> Millard, 1962 .	SM 239	SAM-H2991
<i>Thecocarpus formosus</i> (Busk, 1851)	SM 163/4	

STATION LIST

Station numbers SM 121–134 are from the 1977 cruise (south coast of Natal), SM 162–185 from the 1978 cruise (off East London), and SM 217–255 from the 1979 cruise (off Transkei).

Station	Co-ordinates		Depth, m	Date
	°S	°E		
SM 121	30°32,2'	30°52,8'	625–900	10.5.77
SM 129	30°53,4'	30°31,7'	850	11.5.77
SM 131	30°43,2'	30°40,8'	780	11.5.77
SM 134	31°00,0'	30°27,2'	900	12.5.77
SM 162	32°55,0'	28°31,0'	630	25.5.78
SM 163/4	33°04,6'	28°06,6'	90	26.5.78
SM 174	33°19,6'	27°52,4'	760	28.5.78
SM 179	33°30,3'	27°22,1'	80	29.5.78
SM 180	33°29,4'	27°21,2'	80	29.5.78
SM 184	33°39,4'	27°11,7'	86	31.5.78
SM 185	33°39,3'	27°11,6'	90	31.5.78
SM 200	31°41,8'	30°03,2'	212	20.6.79
SM 217	32°27,7'	29°18,0'	212	23.6.79
SM 226	32°28,6'	28°58,8'	710–775	24.6.79
SM 228	32°29,5'	28°57,1'	650–700	24.6.79
SM 232	32°14,9'	29°10,4'	560–620	25.6.79
SM 233	32°15,2'	29°09,8'	540–580	25.6.79

Station	Co-ordinates		Depth, m	Date
	°S	°E		
SM 234	32°15,0'	29°09,1'	500-520	25.6.79
SM 237	32°15,4'	29°09,7'	600-650	25.6.79
SM 239	32°14,8'	29°00,8'	90	25.6.79
SM 250	31°59,3'	29°22,5'	150-200	27.6.79
SM 255	31°37,8'	29°40,8'	125	28.6.79

SYSTEMATIC ACCOUNT

Family Campanulinidae

Egmundella ?superba Stechow, 1921

Fig. 1A

Egmundella superba: Stechow, 1923: 126, fig. R. Vervoort, 1966: 110, fig. 10. Millard, 1977: 108, fig. 1D-G.

Material

One infertile sample from Transkei mounted on a slide (SM 239 = SAM-H2999).

Description

A number of hydrothecae with unbranched pedicels similar to those from the Natal coast (Millard 1977) but smaller. Some of the hydrothecae have what appears to be a very delicate diaphragm just below the attachment of the hydranth. All hydrothecae are very fragile and most have collapsed walls.

Only two nematothecae found, arising from hydrorhiza and containing batteries of nematocysts.

Measurements (mm)

Hydrotheca, approx. depth	0,36-0,66
maximum diameter	0,10-0,14
Nematotheca, total length	0,07-0,09
maximum diameter	0,02-0,03

Remarks

The size of the hydrotheca is less than that of the Natal specimen, but closer to that of the holotype measured by Vervoort (1966). The scarcity of nematothecae in this material casts doubt on the value of these structures in identification of some species (see also remarks on *Opercularella* sp., p. 138).

Lovenella corrugata Thornely, 1908

Fig. 2

Lovenella corrugata Thornely, 1908: 82, pl. 9 (fig. 4). Broch, 1914: 32, fig. 8. Jäderholm, 1920: 4, pl. 1 (fig. 5). Vervoort, 1959: 231, fig. 9.

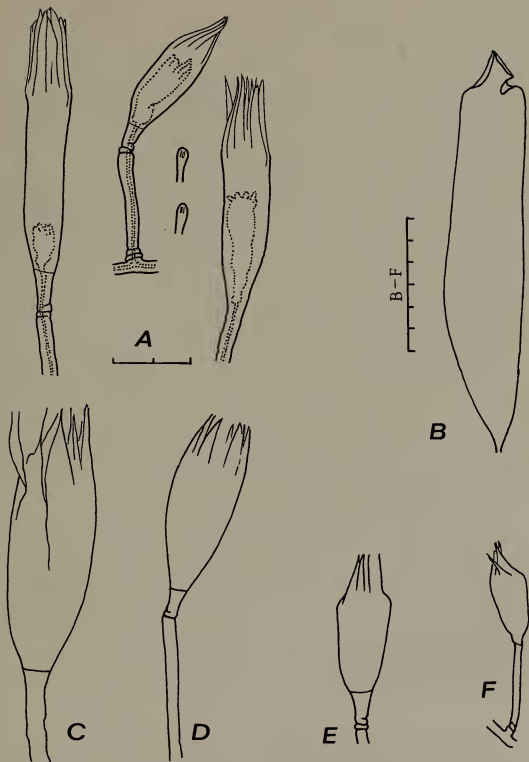


Fig. 1. *Egmundella* ?*superba* Stechow. A. Hydrothecae and nematothecae. *Opercularella* sp. B. Gonotheca. C-F. Hydrothecae. Scale in mm/10.

Material

Five stems mounted on a microscope slide from off East London (SM 180 = SAM-H2960).

Description

Most stems unbranched and bearing a single terminal hydrotheca, but one of them branching twice sympodially. Stem with three or four distinct annulations immediately below hydrotheca and on origin of branches, smooth or irregularly corrugated for the rest.

Hydrotheca large, deep-campanulate, very faintly corrugated in lower part, smooth for the rest though occasionally with longitudinal striations originating from the marginal teeth. Operculum of 8–10 triangular valves seated in embayments of the margin and distinctly demarcated from it. Diaphragm distinct. Several of the hydrothecae containing a second regenerating hydrotheca within them, and one with four such supplementary hydrothecae.

Gonothecae absent.

Measurements (mm)

Stem, height to base of terminal hydrotheca	1,8–6,4
diameter	0,11–0,16
Hydrotheca, height, base to tip of operculum	1,30–1,61
diaphragm to margin	1,04–1,26
maximum diameter	0,40–0,46

Remarks

In spite of the absence of gonophores, this material is fairly certainly a young colony of *L. corrugata*, which is said to differ from *L. clausa* (Lovén, 1836), the type species of the genus, only in the corrugations round the base of the hydrotheca (Thornely 1908).

This material differs from Thornely's type material in the stem which is corrugated for most of its length and annulated at the nodes. However, Vervoort (1959) has illustrated stems with two annulations at each node. The hydrothecae are lightly corrugated, thus resembling those of Jäderholm (1920) and Vervoort (1959) and differing from those of Broch (1914) which are strongly annulated. Only Jäderholm (1920) and Vervoort (1959) give measurements, and their hydrothecae are slightly shorter, though Vervoort also describes a fragment with very large hydrothecae which are similar to the present material.

This is a new record from South Africa. The species has been reported from the Red Sea and from the tropical west coast of Africa.

Opercularella sp.

Fig. 1B–F

Material

Two colonies, both from the Natal coast, the first (SM 121 = SAM-H2946) growing on a gorgonian skeleton and bearing gonophores, the second

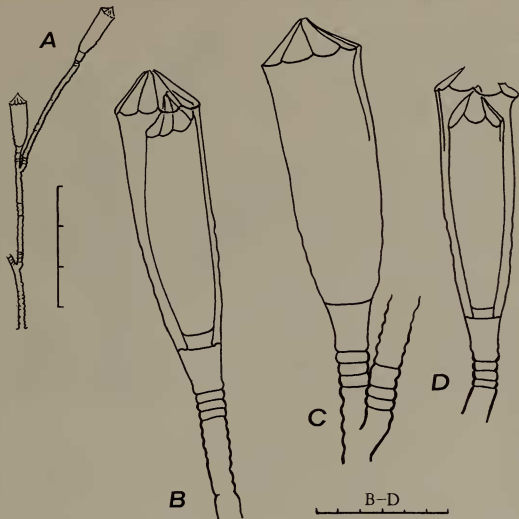


Fig. 2. *Lovenella corrugata* Thornely. A. Stem. B-D. Hydrothecae.
Scale: A in mm; B-D in mm/10.

(SM 131 = SAM-H2945) growing on *Halecium beanii* and infertile. Both colonies in poor condition.

Description

Colony stolonial. Hydrothecae borne terminally on unbranched pedicels, and colonies reaching a total height of 4.8 mm. Pedicel slender, with 2-4 annulations at base, and the rest usually smooth, but sometimes with groups of 2-3 annulations at irregular intervals.

Hydrothecae tubular or spindle-shaped, but most of them with collapsed walls, very variable in size. Diaphragm distinct. Operculum of fragile converging segments not sharply demarcated from thecal margin. No nematothecae.

Gonotheca elongated, widening rapidly from a slender pedicel and then retaining the same diameter throughout. Margin damaged in all of the four examples present, possibly with an operculum. Contents absent.

Measurements (mm)

Hydrotheca, height from diaphragm .	0,44-1,21
diameter at margin	0,18-0,41
Gonotheca, height (approx.) . .	1,7-1,8
maximum diameter	0,30-0,34

Remarks

In view of the poor condition of this material no definite identification has been attempted. It was felt advisable, however, to record the presence of an unbranched *Opercularella* on the South African coast, as poorly preserved hydrothecae, probably all of the same species, have been found (but not recorded) on a number of occasions on the east coast from Natal and as far south as Port Elizabeth. This is the first record of a gonotheca and the only samples described.

Branched species of *Opercularella* have been recorded by Millard (1975, from Vervoor 1966) and by Millard (1977).

The hydrotheca of the present material is very like that of *Egmundella ?superba* (see p. 134), and since the nematothecae in the latter are not abundant or easy to find, there is a possibility that only one species is involved. More well-preserved material is needed before any definite conclusions can be reached.

Family Lafocidae

Acryptolaria rectangularis (Jarvis, 1922)

Fig. 4A

Cryptolaria rectangularis Jarvis, 1922: 335, pl. 24 (fig. 3).

Acryptolaria rectangularis: Millard, 1968: 261, fig. 2. Millard, 1975: 171, fig. 57A-D.

Material

One fragmentary infertile sample from the south coast of Natal (SM 121 = SAM-H2929); and two samples from off the Transkei coast (SM 239 = SAM-H2987; SM 250), the first of these bearing a single coppinia.

Description

The trophosome of these specimens agrees entirely with those previously described.

The coppinia, however, is of considerable interest. It is well developed and mature, measuring 4,5 mm in length and 2,3 mm in diameter. It consists of bottle-shaped gonothecae closely adpressed to one another up to the level of the shoulders. Amongst these arise long tubular structures of smaller diameter, which reach to about double the height of the gonothecae and then branch horizontally and anastomose with each other, thus forming an outer canopy enclosing the necks of the gonothecae and a spacious cavity distal to them.

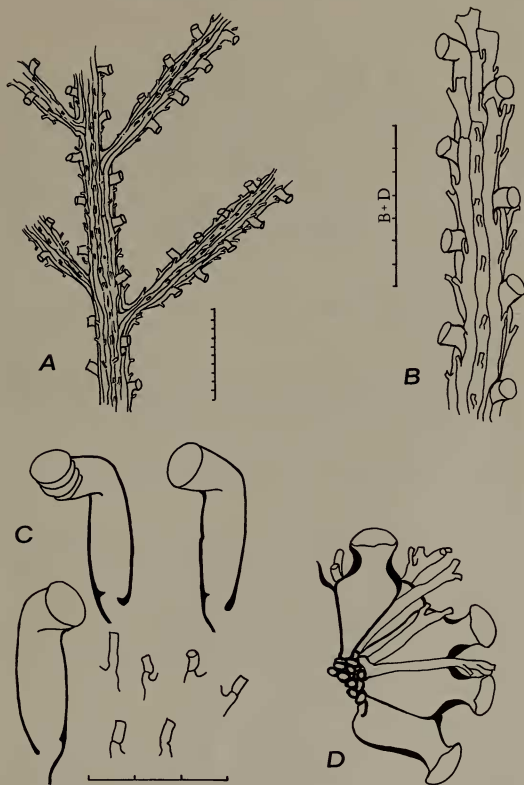


Fig. 3. *Cryptolaria spinosa* sp. nov. from holotype. A. Part of branch showing origins of sub-branches. B. Distal part of branch. C. Hydrothecae and nematothecae. D. Gonothecae and branching nematothecae from t.s. coppinia. Scale in mm/10.

Within this cavity rest a number of planulae recently shed from the gonothecae. The tubular structures bear no nematothecae.

Remarks

At first glance this coppinia is very different from that described by Millard (1968, fig. 2B) for the same species, but closer study and comparison of mounted slides shows that the earlier (1968) material had been badly eroded, and that the shorter tubes then illustrated were gonothecae worn down to the level of the shoulders and the longer tubes the bases of the protective tubes of the outer canopy.

It appears that this structure has carried the protective function of the lafoeid coppinia to a higher degree, since the early stages of the planulae can develop within the enclosed space until such time as they escape through the meshes of the canopy.

Cryptolaria spinosa sp. nov.

Fig. 3

Material

Holotype: SAM-H2986. Station SM 239: 32°14,8'S 29°00,8'E (off Transkei), 90 m. One thick, rooted stem 80 mm in height, and a number of disconnected branches, presumably all from the same colony.

Etymology

Spinosus, Latin, thorny or prickly; referring to the spiny appearance of the stems.

Description

Stem stiff and strongly fascicled, about 4 mm in diameter at base, giving off branches in one plane (only two branches remain on the main stem, the others have all been broken off). No hydrothecae visible; if present completely buried by the peripheral tubes.

Branches strongly fascicled right to end, bearing two rows of alternate hydrothecae which are deeply embedded in the peripheral tubes and create spiny appearance, giving off subalternate sub-branches in one plane, which arise immediately opposite every first and sixth (or occasionally seventh or eighth) hydrotheca.

Sub-branches similar to branches, fascicled right to end, bearing two rows of alternate hydrothecae.

Hydrotheca tubular, adnate for about three-quarters height, this part completely buried in the peripheral tubes, then bent outward at a right angle, with perisarc thickened on abcauline side at bend and on base of adcauline wall. Margin more or less parallel to axis of branch. Diaphragm distinct. Reduplications of margin common.

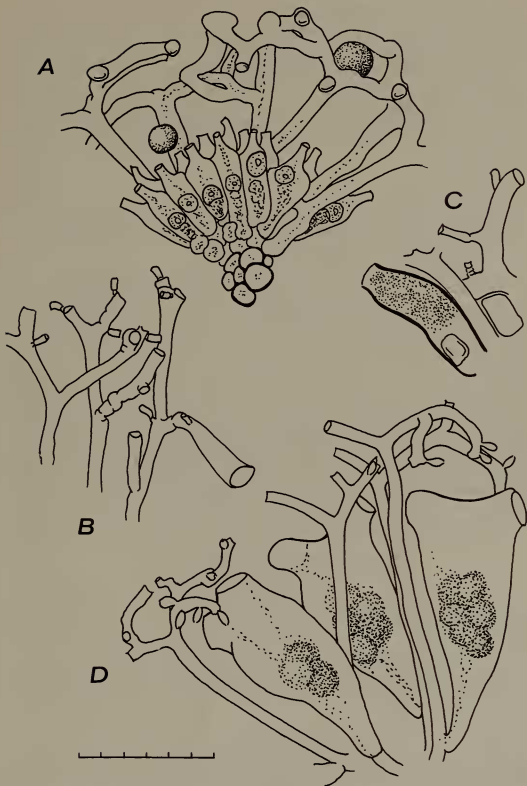


Fig. 4. *Acryptolaria rectangularis* (Jarvis). A. Part of t.s. coppinia, showing protective outer canopy with two planulae still in the meshes.

Zygothylax inconstans Millard. B. A few of the tubular protective structures from a coppinia.

Zygothylax armata (Ritchie). C. A male gonotheca and two branching nematothecae from a coppinia.

Zygothylax infundibulum Millard. D. Part of t.s. coppinia showing three gonothecae and several nematothecate protective structures.

Scale in mm/10.

Nematothecae arising from peripheral tubes at fairly regular intervals, borne on a slender pedicel, tubular and generally curved outwards though often irregular, with a diaphragm usually visible.

Several coppiniae present, about 1,5 mm in diameter and covering up to 17 mm of branch, consisting of closely adpressed gonothecae and a few tubular protective structures. Gonotheca broadly flask-shaped, with a bulging basal part and a short, widely flared neck bearing a terminal aperture. Tubular structures about the same height as gonothecae, branching, bearing nematothecae.

Measurements (mm)

Distance between two hydrothecae on same side	0,34-0,58
Hydrotheca, length abcauline, adnate part (to bend)	0,14-0,22
length abcauline, free part (beyond bend)	0,05-0,09
adnate part/total abcauline length	0,64-0,80
diameter at margin	0,09-0,11
Nematotheca, length including pedicel	0,05-0,11
Gonotheca, length	0,51-0,64
diameter at mouth	0,17-0,26

Remarks

Ralph (1958) recognized five species of *Cryptolaria* and illustrated the gonothecae of the three which occur in New Zealand, namely *C. exserta* Busk, 1858; *C. pectinata* (Allman, 1888) and *C. prima* Busk, 1857. All three have gonothecae with pointed or conical hood-like structures arching over a sub-terminal aperture, and from them the present material is immediately distinguished by its flask-shaped gonothecae. The other two species, *C. filicula* (Allman, 1888) and *C. chazaliei* (Versluys, 1899) can probably be reduced to synonyms. The trophosome of this new species most closely resembles *C. exserta*.

Zygophylax armata (Ritchie, 1907)

Fig. 4C

Brucella armata Ritchie, 1907: 533, pl. 2 (fig. 2A-C).

Zygophylax armata: Millard, 1975: 192, fig. 63A-B.

Material

Several infertile colonies from off East London (SM 163/4, 179, 185), and one fertile colony (SM 239 = SAM-H2990) from off Transkei, all in water under 100 m in depth.

Description

The fertile specimen bears the first coppiniae to be found in South Africa, confirming the identification of the species and distinguishing it from *Z. biarmata* Billard, 1905, which has a similar trophosome. The coppiniae are small (3-4 × 1,5 mm) and appear to be young, with only a few (male) gonothecae

amongst the mass of branching nematothecae. The gonotheca has a short tubular neck with a single distal aperture, as described by Ritchie (1907) for the type from Gough Island. However, since the gonothecae are scarce and are not packed tightly together, no clear hexagonal pattern is visible in surface view as in Ritchie's material.

Zygophylax inconstans Millard, 1977

Fig. 4B

Zygophylax inconstans Millard, 1977: 117, fig. 5.

Material

A rich fertile colony from the Transkei coast (SM 233 = SAM-H2971).

Description

Colony consisting of straggling stems closely entwined and adhering to the bryozoan *Bugulella australis* Hayward & Cook, 1979.

Many coppinae present, some completely unprotected as described by Millard (1977), and some with tufts of branching tubular structures. The latter appear to be modified stems, since they bear a few hydrothecae and many nematothecae, but the branching is quite irregular.

Remarks

The presence of protective structures on some of the coppinae emphasizes the relationship between this species and *Z. profunda* Quelch, 1885, and *Z. armata* (Ritchie, 1907) as discussed by Millard (1977). However, because of the characteristic flexuous and entangled stems and the association with a bryozoan in *Z. inconstans*, it is felt advisable to retain a separate species. The holotype material was associated with the same species of bryozoan.

Zygophylax infundibulum Millard, 1958

Fig. 4D

Zygophylax infundibulum Millard, 1958: 180, fig. 4B-C. Millard, 1975: 197, fig. 65D-E.

Material

A rich sample from the Transkei coast (SM 239 = SAM-H2984) consisting of fascicled stems reaching 54 mm in height, bearing one mature coppinia and a number of immature ones.

Description

Trophosome as previously described. Mature coppinia 7 mm in length and 4 mm in diameter. Gonothecae not adpressed, narrow at base and widening distally, then divided into two outwardly curved necks bearing the terminal apertures. Protective tubular structures numerous, arising amongst the gonothecae and rising above them, completely obscuring them and forming a

bristly coat to the coppinia; each branching irregularly and bearing many nematothecae similar to those of the trophosome. Each gonotheca apparently arising from the base of one of the tubular structures.

Remarks

The trophosome of this species is close to that of *Z. sibogae* Billard, 1918, and a similar relationship occurs in the gonosome. Billard (1918) describes for his species a coppinia with some fused and some separate gonothecae, each with two recurved necks, and the whole surrounded by 'dactylothecae'. Unfortunately he gives no illustration.

This endemic South African species has previously been reported only from the Natal coast. This record extends the distribution southwards to Transkei. This is the first description of the coppinia.

Family Syntheciidae

Synthecium hians Millard, 1957

Fig. 5A-B

Synthecium hians Millard, 1957: 204, fig. 9A-C. Millard, 1975: 238, fig. 77C-D.

Material

A very old and large fertile colony from off East London, with a mass of intertwined hydrorhizal tubes giving off upright stems (mostly dead) reaching 28 mm in height (SM 185 = SAM-H2966). Another infertile colony from off Transkei (SM 239).

Description

Details of stems and hydrothecae as previously described.

Gonothecae borne directly on hydrorhiza or from within the ends of short tubes which are probably damaged stems or hydrorhizal tubes, flattened, vase-shaped in broad view, with a wide aperture extending right across the truncated distal end, with 4-6 very distinct crested annulations, containing one large gonophore.

Measurements (mm)

Height of gonotheca	.	.	.	.	2,1-3,0
maximum diameter	.	.	.	.	2,0-2,4

Remarks

The gonotheca is here described for the first time for this species. It differs from that of *Synthecium dentigerum* Jarvis and *S. elegans* Allman in its flattened shape, wide aperture and origin from the hydrorhiza.

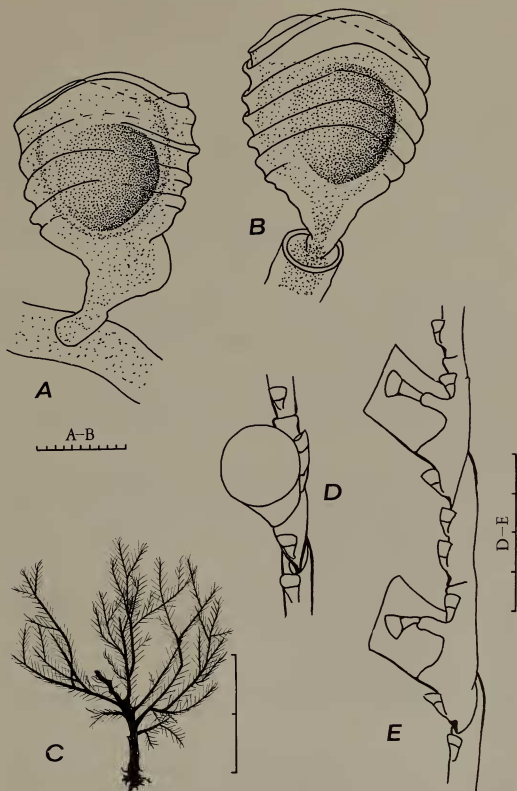


Fig. 5. *Syntheicum hians* Millard. A-B. Gonothecae.
Corhiza sociabilis sp. nov. from holotype. C. Whole stem. D. Anterior view of hydrotheca.
 E. Part of hydrocladium.
 Scale: A-B, D-E in mm/10; C in cm.

Family *Plumulariidae*, subfamily *Halopterinae**Corhiza sociabilis* sp. nov.

Fig. 5C-E, 6A-C

Material

Holotype: SAM-H2978. Station SM 237: 32°15,4'S 29°09,7'E (off Transkei), 600-650 m. Three well-developed fertile stems, 35, 41 and 42 mm in height respectively, two of them with rootstock, and several smaller fragments.

Etymology

Sociabilis, Latin, sociable or easily united; referring to the presence of a 'companion tube' accompanying each branch.

Description

Colony branching and tree-like, with the final ramifications very delicate and feathery, the whole roughly in one plane. Stem strongly fascicled, 1-2 mm in diameter at base, branching and rebranching irregularly. Hydrocladia borne on all categories of branches.

Stem and branches composed of three kinds of tube (Fig. 6A):

1. Axial tubes, which give rise to sub-branches and/or hydrocladia.
2. A 'companion tube' bearing hydrothecae accompanying each branch.
3. Peripheral tubes, which do not bear hydrocladia, but which may bear nematothecae.

Axial tube unsegmented, giving rise to hydrocladia, each from a short apophysis, and nematothecae. Thick stems may have several axial tubes all giving rise to hydrocladia. Hydrocladia *usually* alternate and forming a double series, but irregular hydrocladia arising in any plane may interrupt the series (Fig. 6B). Cauline nematothecae usually 3 to each hydrocladium, of which 1 is in the axil, 1 above and 1 below.

Companion tube a modified hydrocladium and of similar composition, arising from an axial tube in place of a hydrocladium and accompanying a branch which arises (as far as can be seen) from a different axial tube (Fig. 6A); closely attached to anterior surface of branch for the full length of the latter and continued for a short distance beyond it. The hydrothecae on the companion tube may give a superficial impression of cauline hydrothecae, but they do not relate to the hydrocladia in any regular way. The companion tube appears to be in cytoplasmic continuity with its accompanying axial tube through a number of small pores.

Hydrocladium (Fig. 5E, 6B) consisting of alternate athecate and thecate internodes terminating in oblique and straight nodes respectively. Atheate internodes bearing two median nematothecae, but 2-3 on first internode which is slightly longer. Thecate internodes bearing one hydrotheca and five nematothecae, one median inferior and two pairs lateral.

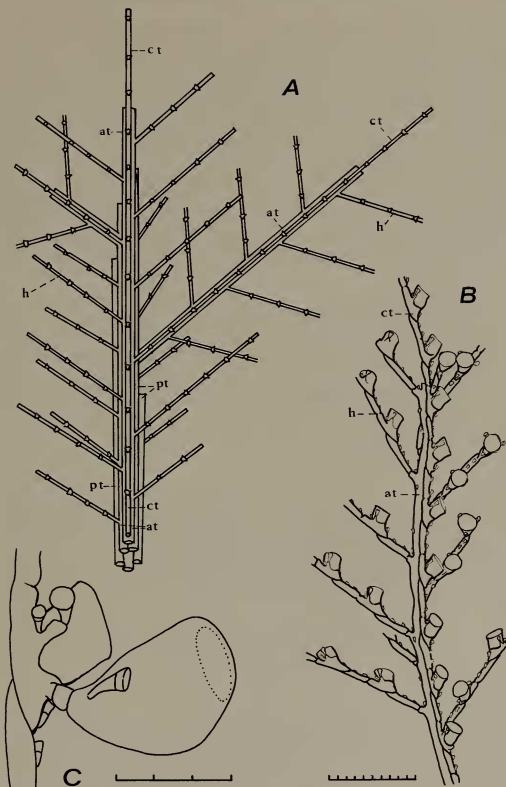


Fig. 6. *Corhiza sociabilis* sp. nov. from holotype. A. Diagram to illustrate method of branching. B. One of the smaller branches showing an axial tube giving rise to hydrocladia, and accompanied by a companion tube. C. Gonotheca.

at—axial tube, ct—companion tube, h—hydrocladium, pt—peripheral tube.
Scale in mm/10.

Hydrotheca cup-shaped, with depth approximately equal to diameter, adnate for under half height, then free. Free part of adcauline wall slightly concave. Margin untoothed, facing obliquely away from stem.

Nematothecae two-chambered and movable, with funnel-shaped distal chamber. Median inferior nematotheca seated below hydrotheca and not reaching its base. Larger lateral nematotheca seated on finger-shaped process next to hydrotheca, not quite reaching to margin. Smaller lateral nematotheca seated in axis of finger-shaped process.

Gonotheca (Fig. 6C) arising from hydrocladium or companion tube immediately below and to one side of the base of the hydrotheca, with a pedicel of two segments, curved and pear-shaped, with a wide operculate distal opening, bearing two large nematothecae near base. Sex probably female, since there is a single large embryo-like structure, but preservation not very good.

Measurements (mm)

Thecate internode, length	0,29–0,39
Athecate internode, length (not first one)	0,30–0,42
Hydrotheca, height abcauline	0,11–0,21
height adcauline, adnate part	0,10–0,14
free part	0,12–0,20
adnate part/total adcauline height	0,39–0,50
diameter at margin	0,18–0,23
Gonotheca, height	0,45–0,52
maximum diameter	0,29–0,32

Remarks

This species is unique in the possession of the 'companion tube'. Its relationships lie with the Halopterinae, particularly in the large hydrotheca and the shape of the gonotheca which also bears nematothecae.

It has been placed in the genus *Corhiza* because of the fascicled stem, in which more than one tube may give origin to hydrocladia, and in which one (the companion tube) terminates as a hydrocladium.

Family Plumulariidae, subfamily Aglaopheniinae

Cladocarpus pegmatis sp. nov.

Fig. 7

Material

Holotype: SAM–H3018. Station SM 232: 32°14,9'S 29°10,4'E, 560–620 m (off Transkei). One rooted, infertile stem and a number of fragments and detached hydrocladia.

Paratype: SAM–H2972. Station SM 233: 32°15,2'S 29°09,8'E, 540–580 m (off Transkei). One incomplete infertile stem 15 mm in height, bearing seven hydrocladia.

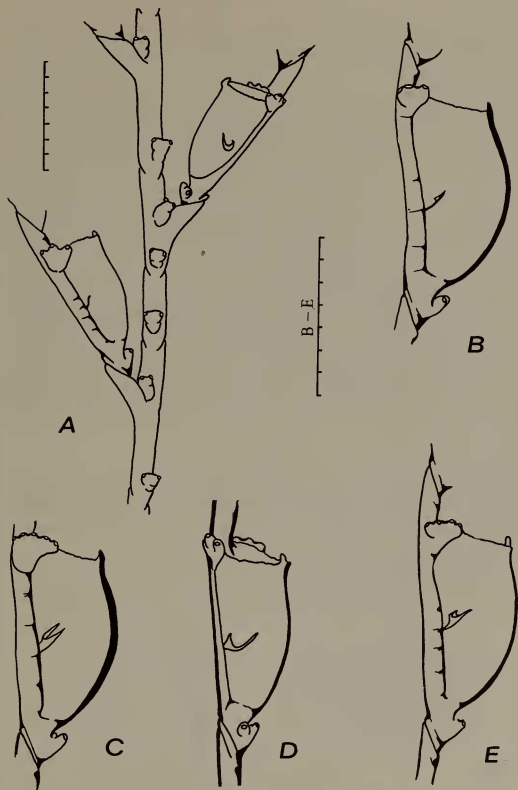


Fig. 7. *Cladocarpus pegmatis* sp. nov. (A-D from the holotype, E from paratype). A. Anterior view of distal part of stem showing origins of hydrocladia. This part has an extra athecate internode. B-E. Hydrothecae. Scale in mm/10.

Etymology

Pegma, Latin, a bookcase or shelf; referring to the horizontal shelf or septum in the hydrotheca.

Description of holotype

Hydrorhiza forming a branching rootstock for penetration of mud. Stem slender, moderately stiff, weakly fascicled at base, unbranched, reaching 40 mm in height, bearing alternate hydrocladia from the axial tube. Axial tube segmented in distal region, the internodes separated by oblique nodes and each bearing one hydrocladial apophysis and two cauline nematothecae of which one is in the axil of the apophysis and one below it. In the proximal unsegmented region there may be three cauline nematothecae between two consecutive hydrocladia. Rarely an extra ahydrocladial internode bearing one nematotheca may be present (Fig. 7A). Stem without septa.

Hydrocladium bearing hydrothecae on anterodistal surface, consisting of thecate internodes separated by oblique nodes. Internodes straight to slightly curved; with up to 8 septa (1 below hydrotheca, 0-6 behind it and 0-1 above it); with 1 hydrotheca and 3 nematothecae, 1 median inferior and 1 pair laterals.

Hydrotheca moderately deep (height = $2-2\frac{1}{2}$ times diameter); abcauline wall convex except for a slight concavity near distal end; widest at about the centre and narrowing slightly to margin, with a bracket-shaped adcauline intrathecal septum at about one-third height. Margin slightly oblique and tilted away from hydrocladium, with one median abcauline tooth and crenulated side-edges.

Median inferior nematotheca seated below hydrotheca and not reaching its base, bifurcated and with two circular terminal apertures and one at base of adcauline wall. Lateral nematotheca saccular, with 3-5 terminal apertures overtopping thecal margin and one opening on median surface; Cauline nematotheca large, saccular and bifurcated; with two terminal apertures.

Gonosome absent.

Paratype exactly similar to holotype.

Measurements (mm)

	<i>Holotype</i>	<i>Paratype</i>
Hydrocladium, internode length . . .	0,80-1,20	1,01-1,13
diameter (at distal end) . . .	0,09-0,13	0,09-0,10
Hydrotheca, depth to tip of tooth . . .	0,64-0,82	0,67-0,79
diameter at margin . . .	0,30-0,35	0,31-0,38
depth/diameter . . .	2,06-2,42	2,08-2,35

Remarks

This species is closely related to *C. distomus* Clarke, 1907, and its allies, namely *C. bathyzonatus* Ritchie, 1911, *C. multiapertus* Billard, 1911, *C. alatus*

Jarvis, 1922, and *C. plumularioides* Jarvis, 1922. These were included as possible synonyms for *C. distomus* by Millard (1975). Of them all, the closest is *C. alatus*, in which the proportions of the hydrotheca and the structure of the lateral nematotheca are similar, and in which according to Jarvis (1922) there is an adcauline intrathecal septum. (Vervoort (1966: 153) has redescribed the type of this species but does not mention the intrathecal septum.) There are, however, small but significant differences. *C. alatus* has an unsegmented stem with more cauline nematothecae, the hydrotheca is smaller and differently shaped, being widest at the margin, and the median inferior nematotheca has only one terminal aperture.

Another closely related species is *C. leloupi* Millard, 1962, in which the proportions of the hydrotheca are close, the lateral nematotheca is similar and the median inferior nematotheca is bifurcated. However, there are two intrathecal septa, one adcauline and one abcauline. Millard (1975) mentions a variation where intrathecal septa may be absent in young hydrothecae, but if one is absent, both are absent, and the adcauline septum does not occur without the abcauline one. Smaller differences include larger and differently shaped hydrothecae in *C. leloupi*, and shorter hydrocladia.

This new species is thus established mainly on the combination of the following characters: the distinctive shape of the hydrotheca, the presence of one (adcauline) intrathecal septum and a bifurcated median inferior nematotheca.

DISCUSSION

The species from the 1977 cruise of the *Meiring Naude* were included in the analysis of geographical distribution previously published (Millard 1978). The

TABLE 1

A list of species whose geographical range is extended as compared with the results of Millard (1978). The numbers in brackets indicate new sectors, as defined in the above-mentioned paper.

A. Extension southwards	B. Extension northwards
<i>Acryptolaria rectangularis</i> (22)	<i>Cladocarpus valdiviae</i> (22)
<i>Cladocarpus natalensis</i> (22)	<i>Corhiza scotiae</i> (22)
<i>Egmundella amirantensis</i> (22)	<i>Cryptolarella abyssicola</i> (22)
<i>Garveia crassa</i> (22)	<i>Nemertesia ciliata</i> (22)
<i>Halopteris polymorpha</i> (22)	
<i>Parascyphus simplex</i> (21, 22)	
<i>Symplectoscyphus amphoriferus</i> (22)	
<i>Zygophylax armata</i> (20)	
<i>Zygophylax inconstans</i> (22)	
<i>Zygophylax infundibulum</i> (22)	

results of the 1978 and 1979 cruises have supplied some additional records to the above-mentioned analysis. Quite a number of gaps in the range of distribution as given in Appendix 2 by Millard (1978) are satisfactorily filled in, and, moreover, the range is extended for several species (Table 1). For four species the range is extended from the south coast northwards into the East London/Transkei area and for ten the range is extended from the east coast southwards into the same area.

In addition there are three new species: *Cryptolaria spinosa* (*sector 22), *Corhiza sociabilis* (sector 22), *Cladocarpus pegmatis* (sector 22); and one new record from the country: *Lovenella corrugata* (sector 21).

The depth range is also extended for various species, but most interesting of all are the records from deep water (over 400 m) which was the primary object of the expedition. Millard (1978, table 6) gave a list of 45 species occurring in depths of over 400 m on the South African coast. To this list 6 more species may now be added, bringing the total to 51 (Table 2). Two of these are new

TABLE 2

Additions to the list of 'deep water' hydroids of South Africa (depths over 400 m).

		Previously known depth range (m)	Revised depth range (m)	Component
<i>Cladocarpus pegmatis</i> sp. nov.	. . .	—	540-620	Endemic
<i>Cladocarpus valdiviae</i>	. . . .	155-200	90-650	Endemic
<i>Corhiza scottiae</i>	. . . . .	18-120	18-580	Endemic
<i>Corhiza sociabilis</i> sp. nov.	. . .	—	600-650	Endemic
<i>Halecium dichotomum</i>	. . . .	11-200	11-775	Endemic
<i>Nemertesia ciliata</i>	. . . . .	11-392	11-650	Temperate

species, and for the other four the known depth is increased, bringing them into the deep-water category. Records from deep water have been indicated by a dagger in the list of species on p. 130.

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* See legend to Table 1.

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